Lab 4 – User Manual

Red Team

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Version 2

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Startup Screen (Dustin Patrick)

LASI is a tool for parsing up to five documents for important words and phrases based on meta-analysis of all documents. The start-up screen is the first thing you see when you open the program. It will load with a Windows 8 style window screen (Figure 1), where the window can be moved by clicking anywhere that is not a button and dragging the screen to the desired location. It has a minimalist design that contains a graphic banner containing the name of the program and an image of a silhouette of a collie. The start-up screen only contains three buttons. From this screen you can create a new project or load an existing project. Clicking on either the Create button (Figure 2) or the Load button (Figure 3) will expand the start-up screen to allow you to create a new project. In the current version of LASI the load project button does not have any function . In future versions the user will be able to load saved LASI projects. There is also an X button (Figure 4) at the top right corner of the application that terminates the program when clicked.

Figure 1. Start-up Screen

Figure 2. Create

Figure 3. Load

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Figure 4. X to close

Create Project

The Create Project screen (Figure 5) will provide a text field to name your project, called "Name" (Figure 6). Next, there is a browse button (Figure 7) to allow you to select the destination folder for the project, called the "Location". Finally, there is a text field connected to a browse button called "Documents" (Figure 8) where you can find and add documents to the project. A list of already added documents will be displayed on the right (Figure 9) of these options. You can remove documents from this list. Once you add five documents, the "Documents" field will be grayed out and you will no longer be able to add documents. If you attempt to name a project the same name as another project, a message will be displayed that indicates that you can not do that. If you attempt to use a location on your computer that has already been created by another project, a message will display indicating that you can not do that. If you leave any of the fields blank, or don't select any documents, the application will point out which fields need to be filled out before you can create a project. You can also select "Create" (Figure 10) or "Cancel" (Figure 11), which are located below the Name, Location, and

Documents fields. Create will take you to the project preview screen. Cancel will return you to the start-up screen.

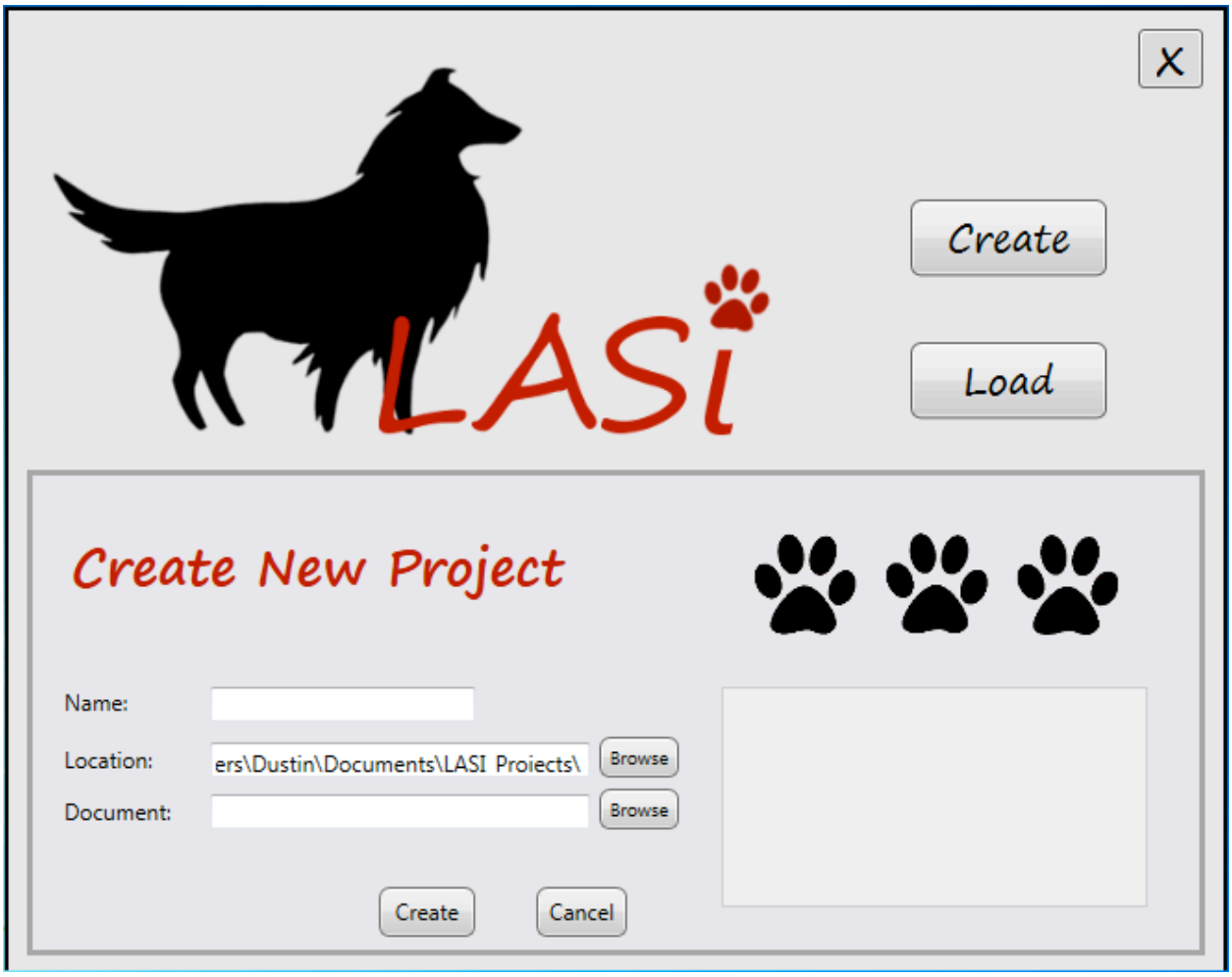

Figure 5. Create Project

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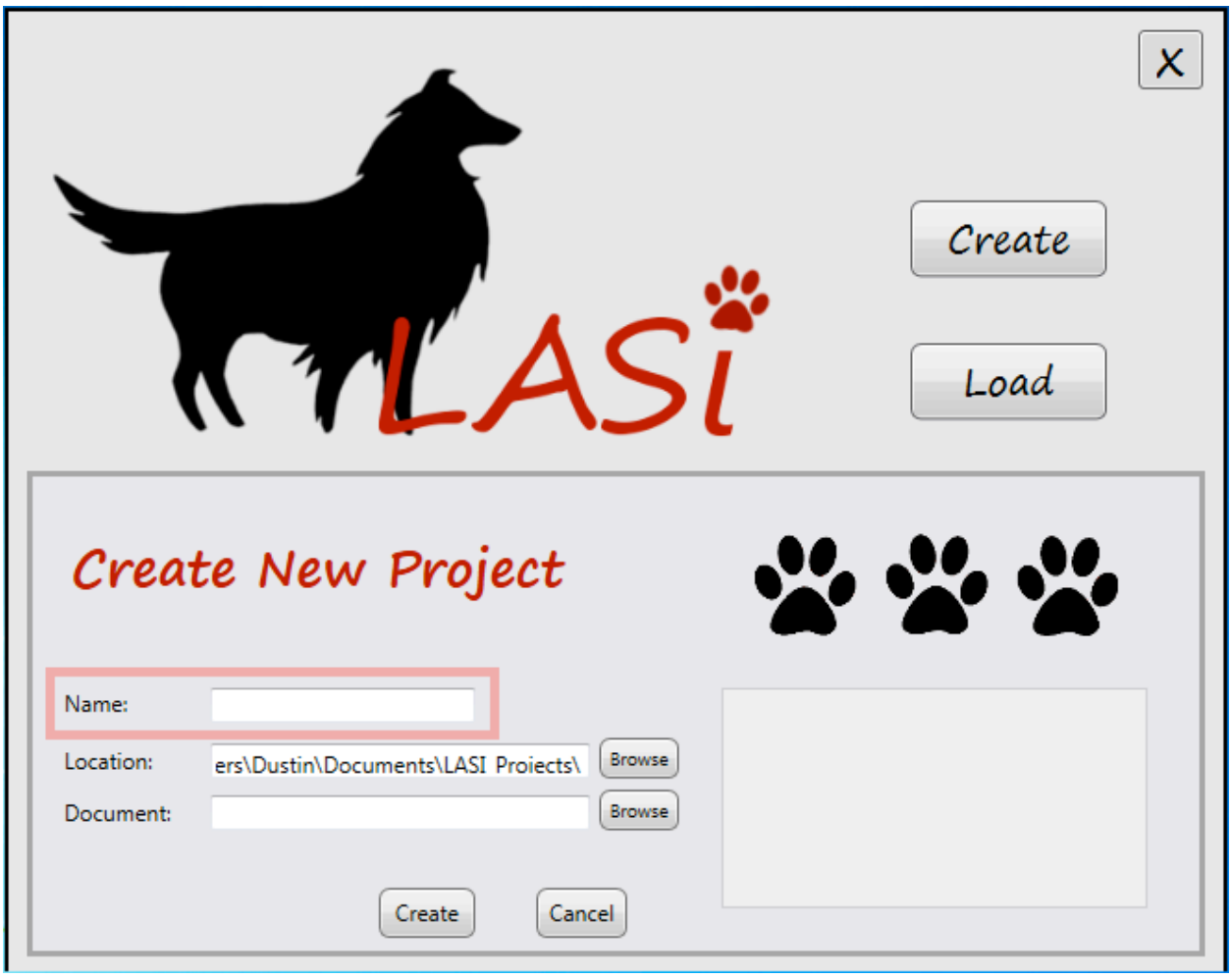

Figure 6. Name

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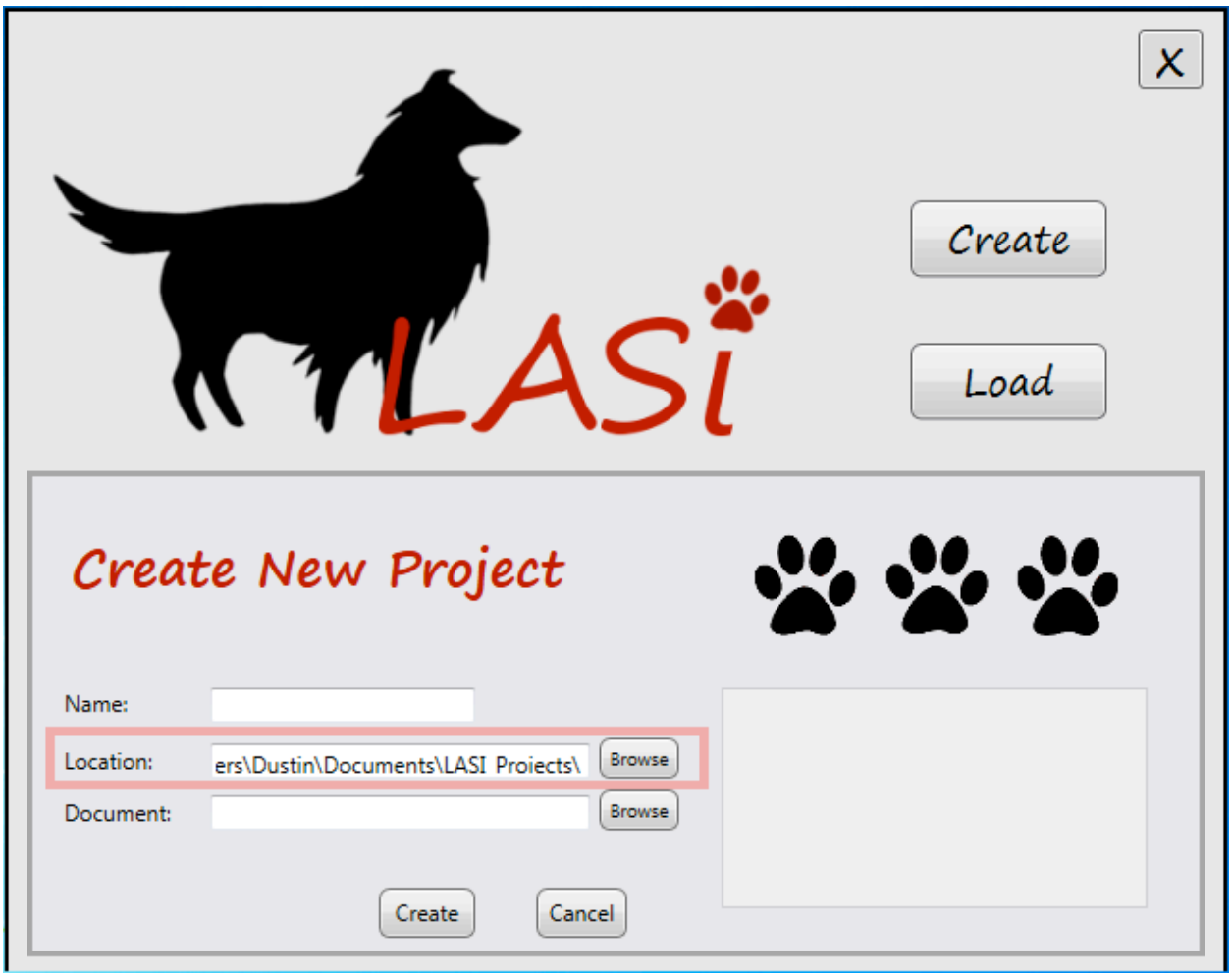

Figure 7. Location

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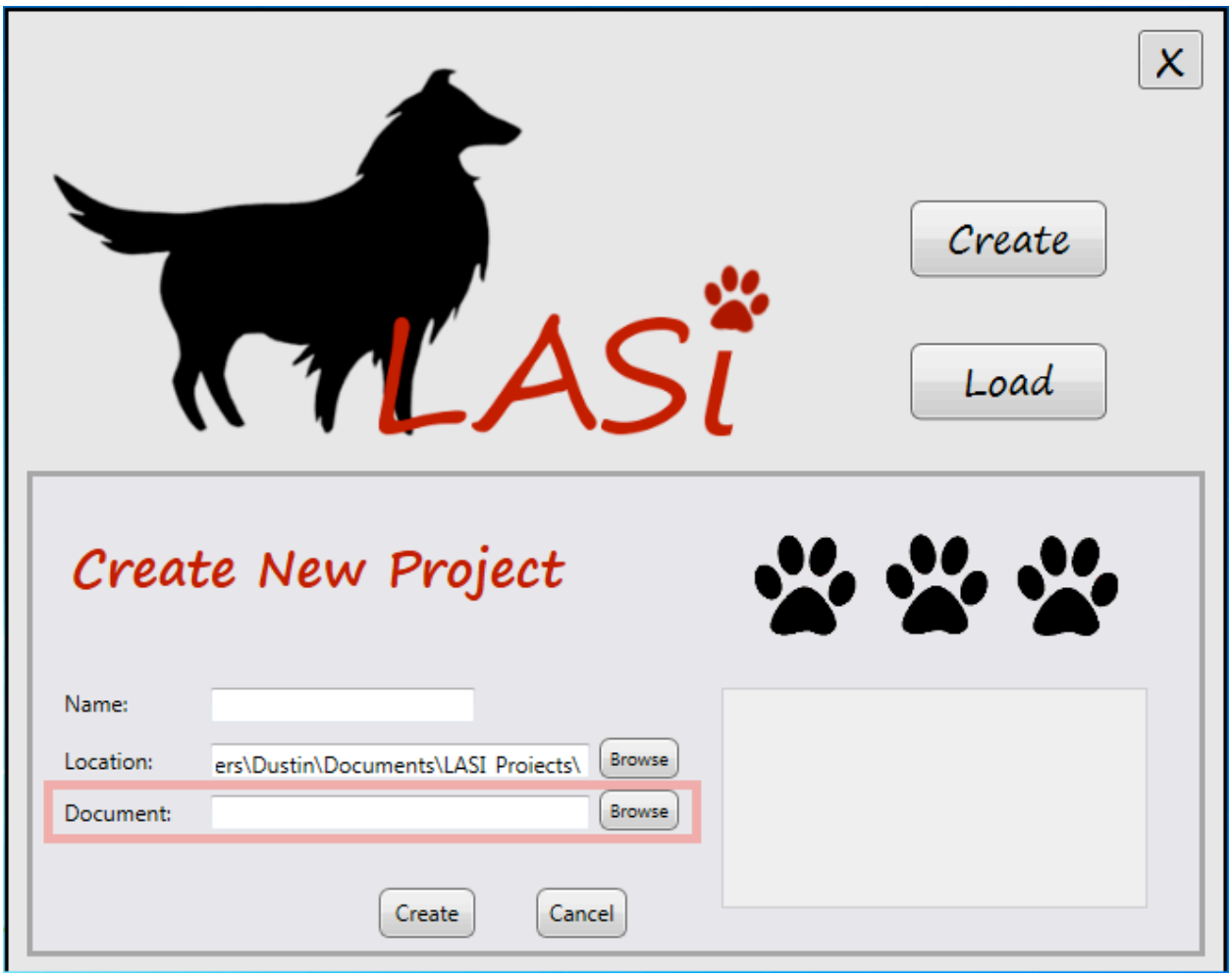

Figure 8. Document

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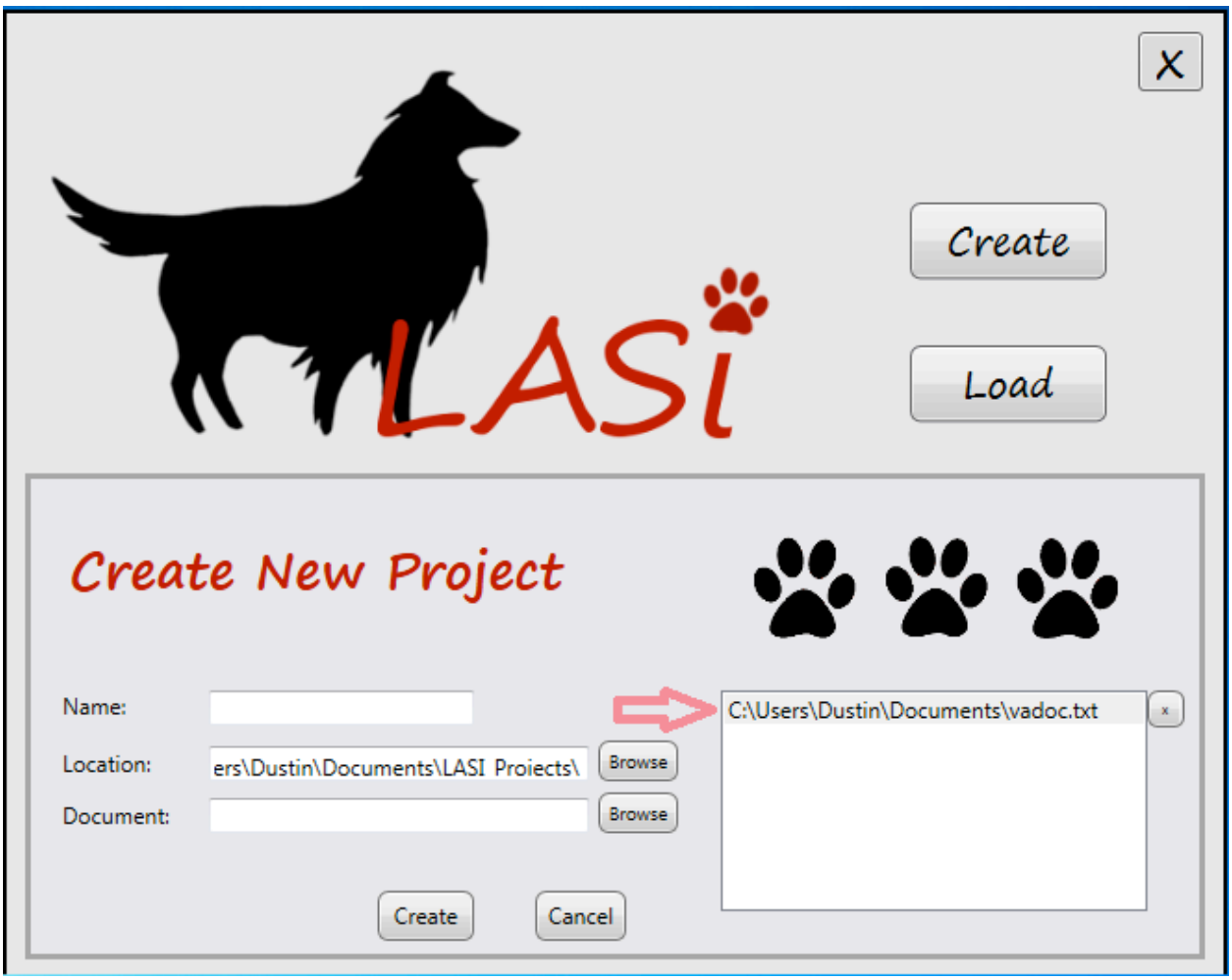

Figure 9. After A Document Has Been Added

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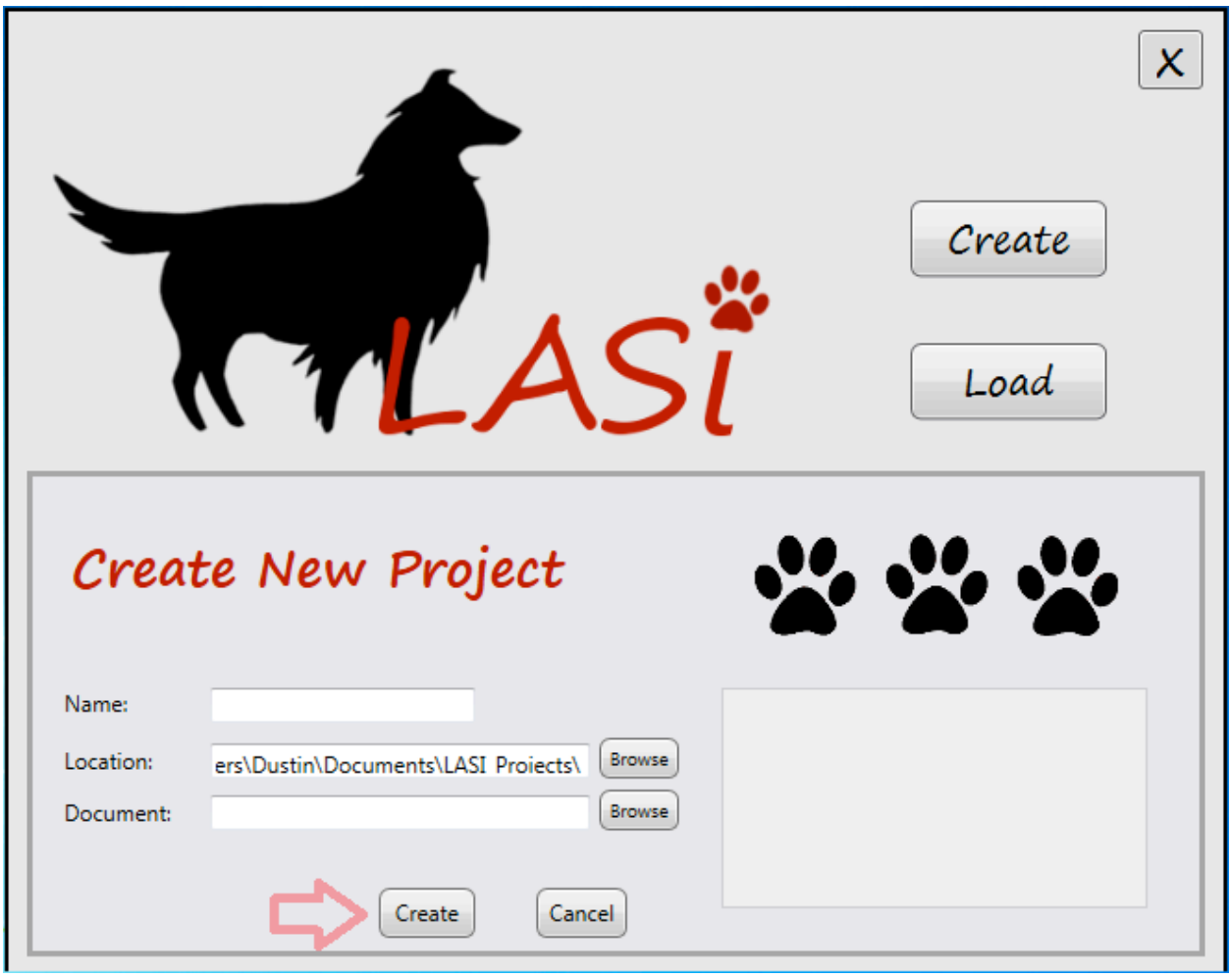

Figure 10. Create New Project

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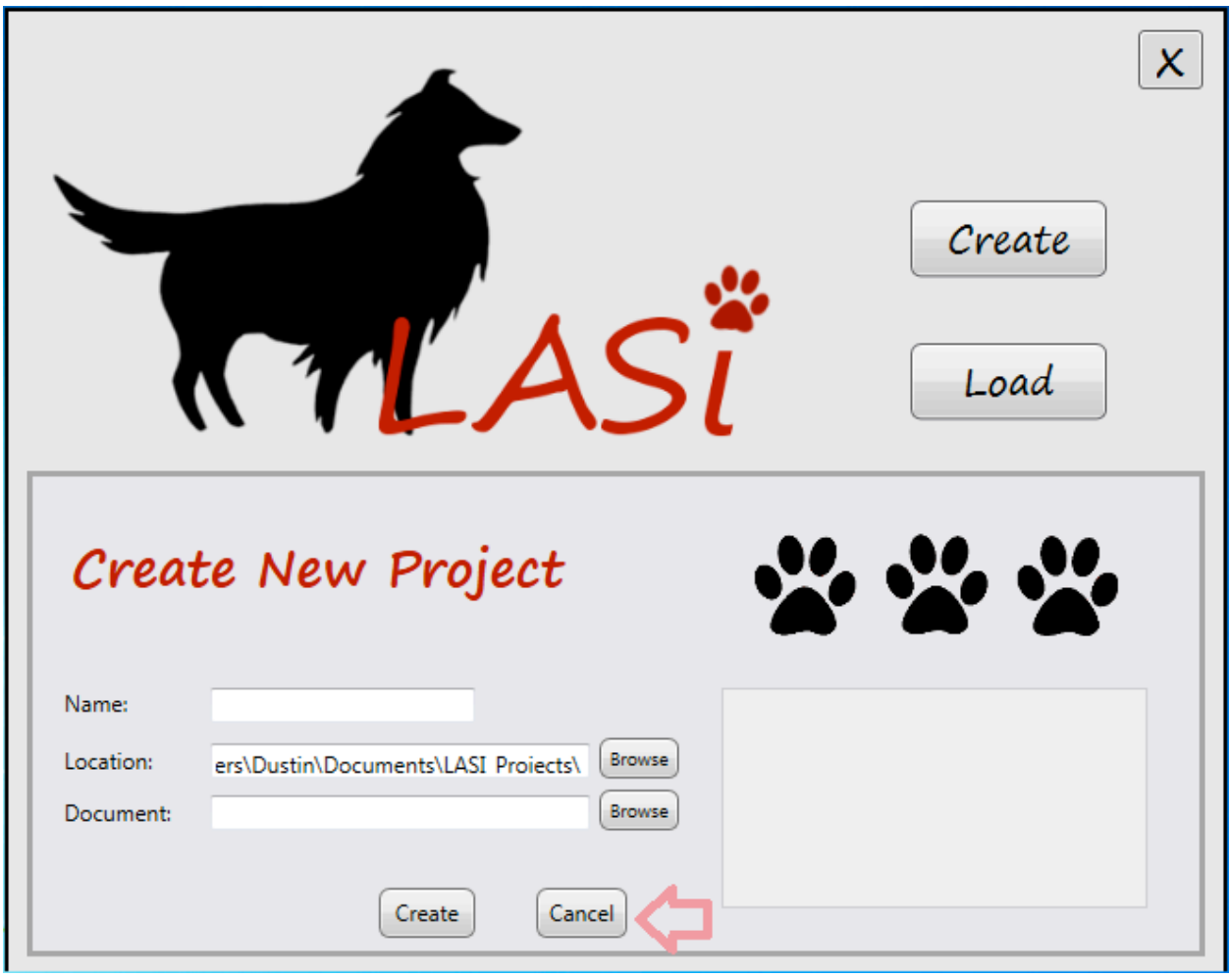

Figure 11. Cancel New Project

Load Project

This feature has not yet been implemented. However, it will contain a similar text field associated with a browse button that will allow you to browse your computer for a file created by exporting the results of LASI analysis to a file.

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Project Preview Screen (Scott Minter)

The project preview screen allows the user to preview the documents they have loaded into a LASI project. A screen shot (Figure 12) has been provided so you may see where the items being discussed here are located. The text of each document can be previewed by clicking on the tab of the same name. If a document, or multiple documents up to five, need to be added to the project you may add them by clicking the "+" button and selecting the document you wish to add from your PC. Likewise, if documents need to be removed from the project you may remove them by clicking the "-" button while the tab of the document you wish to remove is selected. If you wish to go back to the previous screen you may do so by pressing the "<-" button. If you are satisfied with the documents in the project and wish to start analysis pressing the "I > Start" button will start analysis on the selected documents.

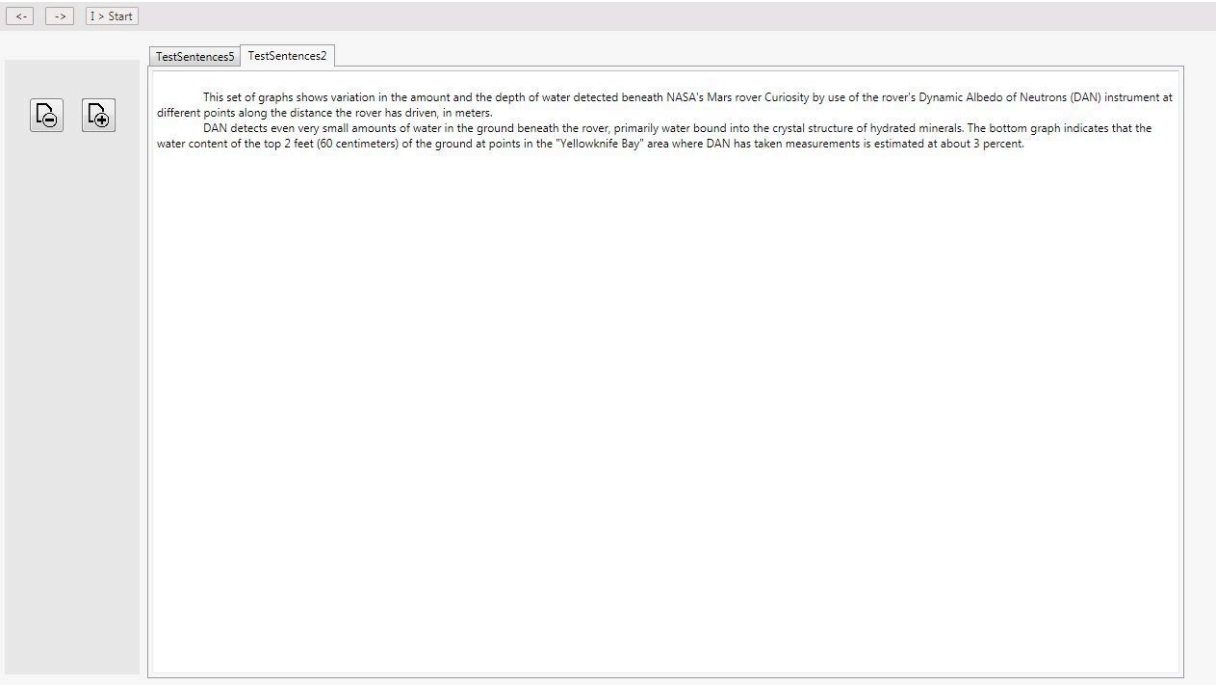
<-
->
I > Start
TestSentences5
TestSentences2
This set of graphs shows variation in the amount and the depth of water detected beneath NASA's Mars rover Curiosity by use of the rover's Dynamic Albedo of Neutrons (DAN) instrument at different points along the distance the rover has driven, in meters.
DAN detects even very small amounts of water in the ground beneath the rover, primarily water bound into the crystal structure of hydrated minerals. The bottom graph indicates that the water content of the top 2 feet (60 centimeters) of the ground at points in the "Yellowknife Bay" area where DAN has taken measurements is estimated at about 3 percent.

Figure 12. Project Preview Screen

In-Progress Screen (Erik Rogers)

Once you have clicked "I > Start" the Project Preview Screen will close, LASI will begin analysis, and you will be redirected to the In-Progress Screen. The function of this screen is to provide you with up-to-date information on how far along the analysis process LASI currently is.

The In-Progress screen consists of a **Progress Bar**, **Moving Paw Prints**, **Minimize** and **Close** buttons, as well as a **Proceed** button.

Progress Bar

Located at the bottom of the screen, and spanning the entire width of the window, is the Progress Bar. When LASI first beings analysis, this bar will be completely empty (representing 0% progress). As LASI crunches away, the bar will begin to fill. When the bar is filled completely (representing 100% progress), analysis is complete and your results are ready to view.

Just above the progress bar (off-centered to the left), text will be displayed in order to keep you updated on the current state of analysis. When this display says "Complete", analysis is complete and your results are ready to view.

Moving Paw Prints

Along with the LASI logo comes a trail of animated paw prints. The moving paw prints are there to show the user that LASI has not frozen and that analysis is still in progress.

Minimize Button

Located at the top right of the screen is the Minimize Button. This button, containing a horizontal line segment that resembles a dash or underscore, will minimize the In-Progress Screen. Minimizing the screen will compact and return it to your Windows' task bar.

Close Button

Located at the top right of the screen is the Close Button. This button, containing an 'x' or a cross, will terminate the analysis and close LASI (including your current Project and all Files associated with it). All unsaved changes or progress will be lost.

Proceed Button

When analysis is complete (the Progress Bar is full and the state status text reads "Complete") a button, containing the text "Proceed", will appear just above the Progress Bar on the right side of the screen. This button signifies that your results are ready to view. Use of this button will terminate the In-Progress Screen and redirect you to the Results Screen.

Results Screen (Brittany Johnson)

The Results Screen contains four main tabs which will display the results from the analysis in different ways. The first is the Top Results (Figure 13) tab which will contain the top results for nouns identified as important in chart forms. The next tab is the Word Count and Weighting tab (Figure 14). This will dislay the exhaustive list which composes the Top Results tab, including the words and their respective weights. Then there is the Recomposted Documents tab (Figure 15). This shows the relationships between words in the entire document. Currently if you hover over a verb phrase and right click. It will display an option to view the subjects or objects of that verb phrase if it has one.

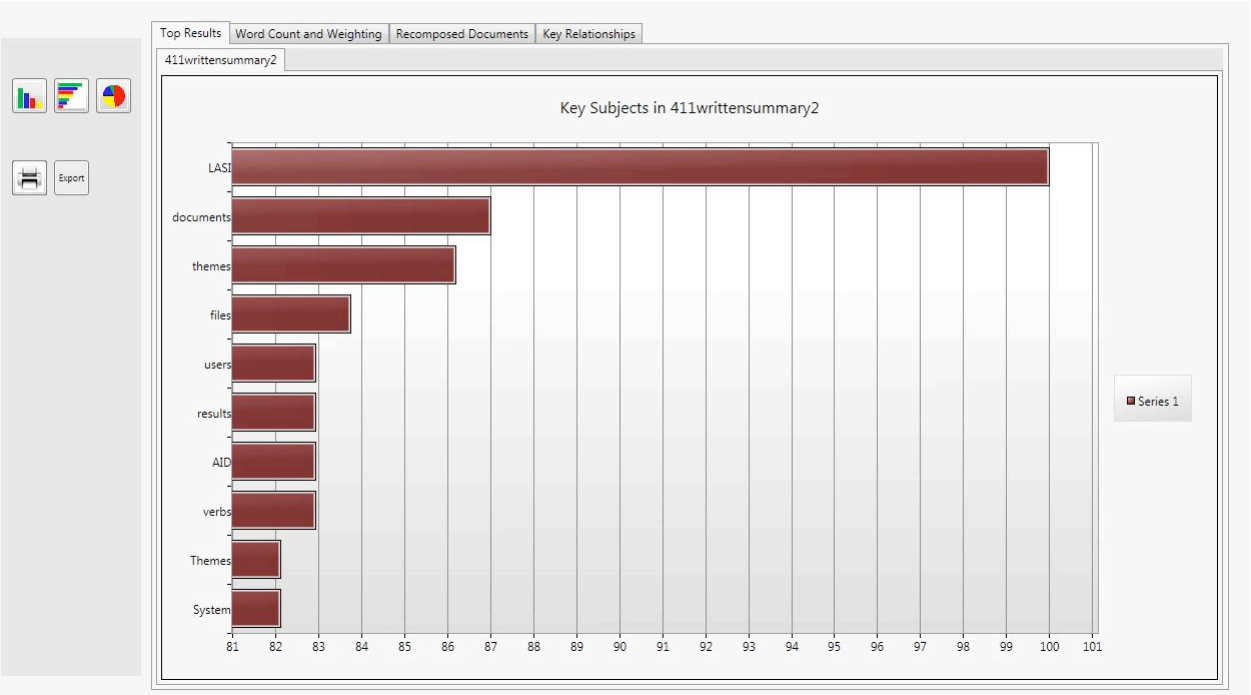

Figure 13. Top Results

Finally, there is the Key Relationships tab (Figure 16). This tab will display Subject/Object/Verb relationships which analysis have shown to be important. Currently, the longer the document the better the results will be in this tab.

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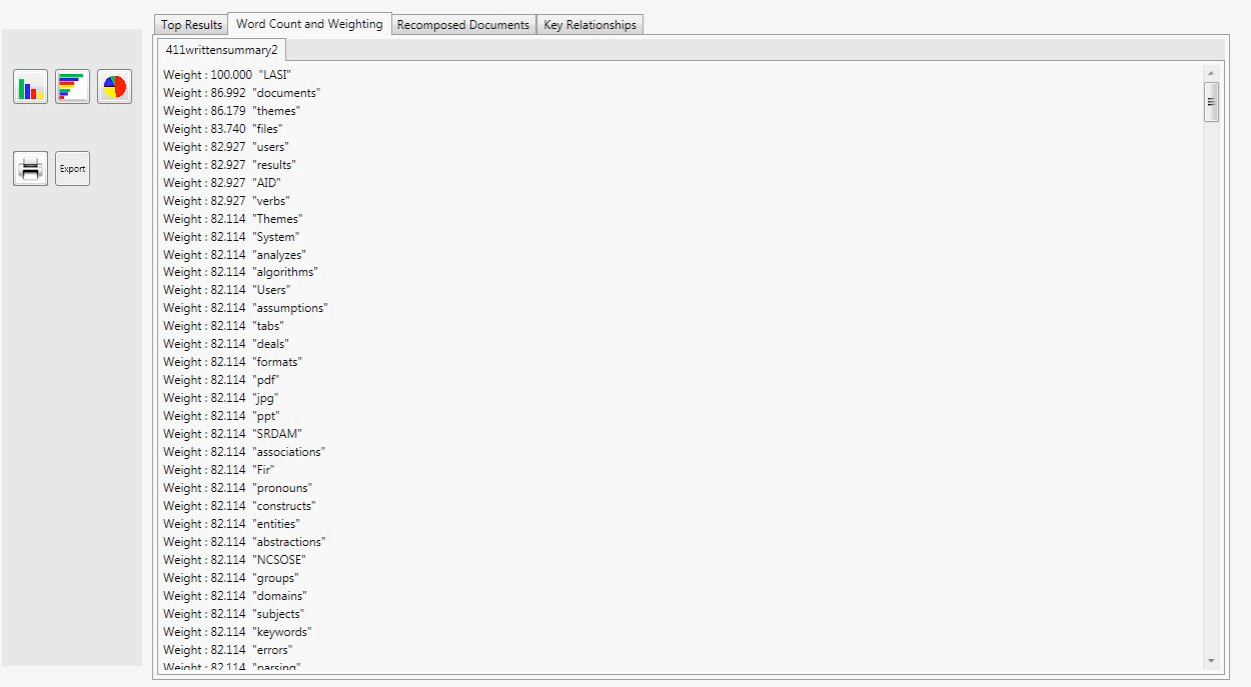


Figure 14. Word Count and Weighting

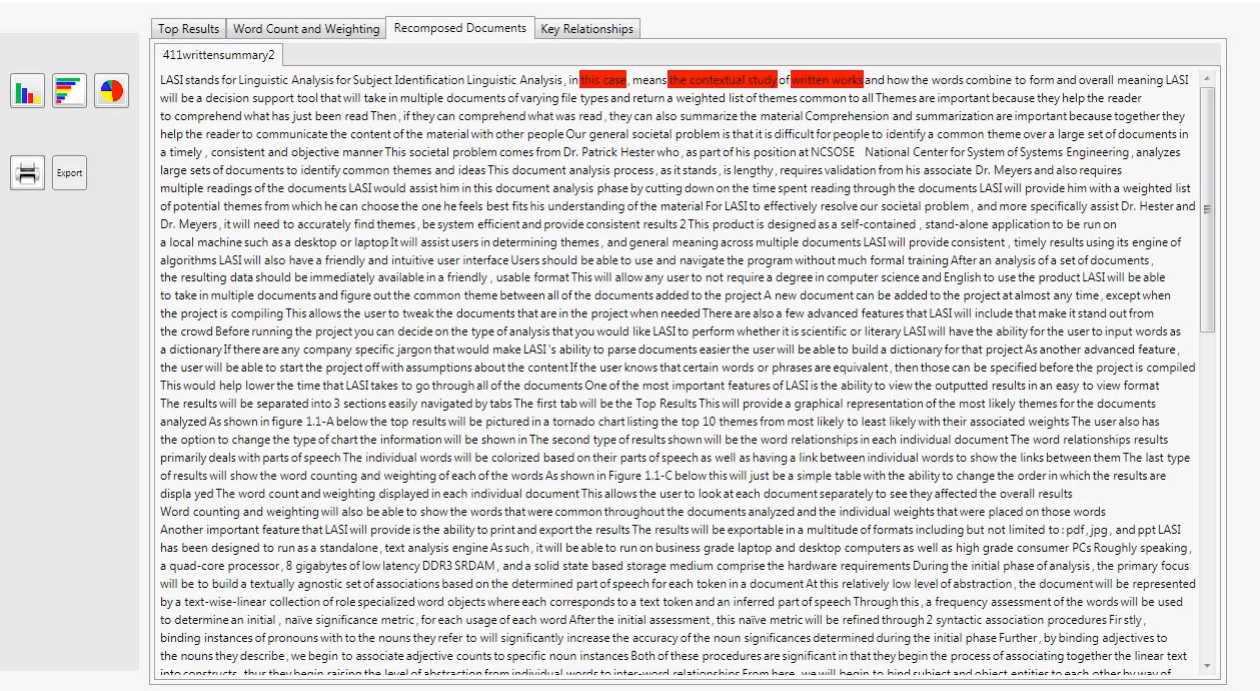
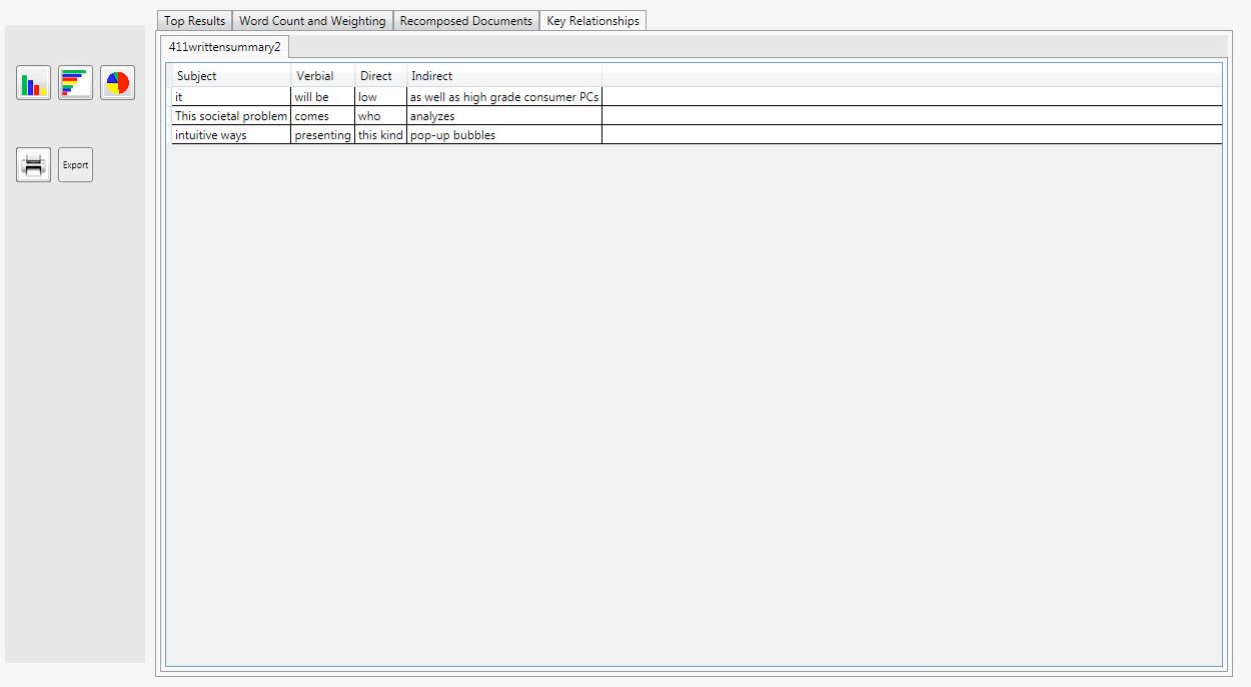

Top Results
Word Count and Weighting
Recomposed Documents
Key Relationships
411writtensummary2
Export
LASI stands for Linguistic Analysis for Subject Identification Linguistic Analysis, in this case, means the contextual study of written work and how the words combine to form and overall meaning LASI will be a decision support tool that will take in multiple documents of varying file types and return a weighted list of themes common to all Themes are important because they help the reader to comprehend what has just been read Then, if they can comprehend what was read, they can also summarize the material Comprehension and summarization are important because together they help the reader to communicate the content of the material with other people Our general societal problem is that it is difficult for people to identify a common theme over a large set of documents in a timely, consistent and objective manner This societal problem comes from Dr. Patrick Hester who, as part of his position at NCSOSE National Center for System of Systems Engineering, analyzes large sets of documents to identify common themes and ideas This document analysis process, as it stands, is lengthy, requires validation from his associate Dr. Meyers and also requires multiple readings of the documents LASI would assist him in this document analysis phase by cutting down on the time spent reading through the documents LASI will provide him with a weighted list of potential themes from which he can choose the one he feels best fits his understanding of the material For LASI to effectively resolve our societal problem, and more specifically assist Dr. Hester and Dr. Meyers, it will need to accurately find themes, be system efficient and provide consistent results 2 This product is designed as a self-contained, stand-alone application to be run on a local machine such as a desktop or laptop It will assist users in determining themes, and general meaning across multiple documents LASI will provide consistent, timely results using its engine of algorithms LASI will also have a friendly and intuitive user interface Users should be able to use and navigate the program without much formal training After an analysis of a set of documents, the resulting data should be immediately available in a friendly, usable format This will allow any user to not require a degree in computer science and English to use the product LASI will be able to take in multiple documents and figure out the common theme between all of the documents added to the project A new document can be added to the project at almost any time, except when the project is compiling This allows the user to tweak the documents that are in the project when needed There are also a few advanced features that LASI will include that make it stand out from the crowd Before running the project you can decide on the type of analysis that you would like LASI to perform whether it is scientific or literary LASI will have the ability for the user to input words as a dictionary If there are any company specific jargon that would make LASI 's ability to parse documents easier the user will be able to build a dictionary for that project As another advanced feature, the user will be able to start the project off with assumptions about the content If the user knows that certain words or phrases are equivalent, then those can be specified before the project is compiled This would help lower the time that LASI takes to go through all of the documents One of the most important features of LASI is the ability to view the outputted results in an easy to view format The results will be separated into 3 sections easily navigated by tabs The first tab will be the Top Results This will provide a graphical representation of the most likely themes for the documents analyzed As shown in figure 1.1-A below the top results will be pictured in a tornado chart listing the top 10 themes from most likely to least likely with their associated weights The user also has the option to change the type of chart the information will be shown in The second type of results shown will be the word relationships in each individual document The word relationships results primarily deals with parts of speech The individual words will be colorized based on their parts of speech as well as having a link between individual words to show the links between them The last type of results will show the word counting and weighting of each of the words As shown in Figure 1.1-C below this will just be a simple table with the ability to change the order in which the results are displa yed The word count and weighting displayed in each individual document This allows the user to look at each document separately to see they affected the overall results
Word counting and weighting will also be able to show the words that were common throughout the documents analyzed and the individual weights that were placed on those words
Another important feature that LASI will provide is the ability to print and export the results The results will be exportable in a multitude of formats including but not limited to : pdf, jpg, and ppt LASI has been designed to run as a standalone, text analysis engine As such, it will be able to run on business grade laptop and desktop computers as well as high grade consumer PCs Roughly speaking, a quad-core processor, 8 gigabytes of low latency DDR3 SRDAM, and a solid state based storage medium comprise the hardware requirements During the initial phase of analysis, the primary focus will be to build a textually agnostic set of associations based on the determined part of speech for each token in a document At this relatively low level of abstraction, the document will be represented by a text-wise-linear collection of role specialized word objects where each corresponds to a text token and an inferred part of speech Through this, a frequency assessment of the words will be used to determine an initial, naïve significance metric, for each usage of each word After the initial assessment, this naïve metric will be refined through 2 syntactic association procedures Fir stly, binding instances of pronouns with to the nouns they refer to will significantly increase the accuracy of the noun significances determined during the initial phase Further, by binding adjectives to the nouns they describe, we begin to associate adjective counts to specific noun instances Both of these procedures are significant in that they begin the process of associating together the linear text

Figure 15. Recomposed Document



Subject	Verbial	Direct	Indirect
it	will be	low	as well as high grade consumer PCs
This societal problem	comes	who	analyzes
intuitive ways	presenting	this kind	pop-up bubbles

Figure 16. Key Relationships

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Menu Bar (Erik Rogers)

In the current version of LASI the only item in the menu which functions is the File > Exit option. Below is a list of the menu features which will be implented in future version of LASI.

File |

| New

Use this selection to either create a new Project from scratch or to create a new parsable File to add to your current project. You will be prompted to save your Project or File. Once saved, you can use the Open feature to retrieve the Project or File in the future.

| Open

Use this command to open a previously saved Project or parsable File. You will be prompted to find the location of said Project or File.

| Add

Use this command to add a pre-existing, parsable File to your current Project. You will be promoted to find the location of said File.

| Save Project As

Use this command to save your current Project to a specific file name or in a new location.

| Save Project

Use this command to save your current Project

| Exit

Use this command to end your LASI session. If any unsaved changes have been made to your current Project, you will be prompted to save them.